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UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS

1963

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UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATION 1963

Preprofessional Year

ANTHROPOLOGY 1f

ANSWER ALL QUESTIONS. ALL ARE OF EQUAL VALUE. NO NOTES OR TEXTS ALLOWED.

1. Define briefly, and indicate the importance to Anthropology of ten (10) of the following items:
    - moko
    - sympathetic nervous system
    - coefficient of similarity
    - sumach bushes
    - Pueblo
    - dendrochronology
    - glottochronology
    - potlatch
    - Temple Mounds
    - windigo
    - grid system
    - post mould
    - pottery type
    - Feast of the Dead
    - W and K types

2. Outline some of the major cultural developments which took place in the New World. Do such developments suggest to you that the Indian was intelligent and progressive, or perhaps that "Necessity was the mother of invention"?

3. Discuss "social status" among native people known to you. What do you consider to be the basic factors underlying such phenomena?

4. To what degree have physical anthropologists such as Sheldon explained human behaviour in the light of an understanding of human biology?

5. With special reference to the Hurons, discuss how an archaeologist finds, excavates and dates a village site. Briefly outline information he gains from such investigation that broadens our knowledge of Huron history.

UNIVERSITY OF TORONTO
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1963

Preprofessional Year

CHEMISTRY 108
GENERAL CHEMISTRY

Examiner - S.S. Danyluk

Logarithm cards supplied; slide rules permitted
Total marks 150

Marks

70

PART A

1. Write a brief paragraph on THREE of the following:
   - (a) the heats of vaporization of water and carbon tetrachloride,
   - (b) the viscosity of "all-weather oil",
   - (c) the action of light on photographic film,
   - (d) the crystal structure of diamond and graphite.

2. Briefly discuss three factors which cause deviations from ideal gas behaviour for real gases.

3. (a) Describe two types of crystal defects and list the properties associated with defect crystals.

(b) Discuss the binding forces in molecular and ionic crystals and give two examples of each type of crystal.

4. (a) Describe the Donnan membrane equilibrium.

(b) Contrast the physical properties of lyophobic colloids with those of lyophilic colloids.

5. A certain reaction occurring in solution can be written as follows: $A + 2B \longrightarrow C$

(a) Write the rate expression for this reaction.

(b) What is the reaction order if

(i) the concentration of A is equal to the concentration of B,

(ii) the concentration of B is much greater than the concentration of A.

(c) Discuss the effect of

(i) an increase in temperature,

(ii) addition of a catalyst,

on the rate of reaction.

continued ...

PART B

80 marks Do questions 1 and 2 and any THREE OTHER questions in this part.

1. A solution of potassium formate (HCOOK) contains 6.9 grams of the salt in one liter of solution at 25°C. What is the concentration (to two significant figures) of each of the following constituents: potassium ion, formate ion, hydronium ion, hydroxyl ion, and formic acid?

Ionization constant of water, $K_w = 1.01 \times 10^{-14}$ moles liter^{-1} at 25°C

Ionization constant of formic acid, $K_i = 1.75 \times 10^{-4}$ moles liter^{-1} at 25°C

Atomic Weights: K = 39.1 C = 12.0
H = 1.01 O = 16.0

2. A certain solid A_2B decomposes at 100°C according to the reaction

$$A_2B\ (s) \rightleftharpoons 2\ A\ (g) + B\ (g)$$

When 5.00 grams of this solid are introduced into a one-liter vessel (from which all other gases had been previously evacuated) the total pressure exerted at equilibrium at 100°C is 2.00 atmospheres.

(i) Calculate the equilibrium constant for this reaction at 100°C. (ii) If the loss in weight of the solid resulting from decomposition is 3.00 grams, what is the molecular weight of A_2B?

Gas constant: R = 0.08205 liter-atm. deg^{-1}mole^{-1}

3. Proactinium decays to thorium according to the decay scheme:

$$Pa^{234} \xrightarrow[k_1=0.6\ \text{min.}^{-1}]{} U^{234} \xrightarrow[k_1{}^1= 2.8 \times 10^{-6}\text{year}^{-1}]{} Th^{230}$$

Starting with one gram of proactinium, what are the amounts of U^{234} after (i) 70 seconds, (ii) 1 day, (iii) 2.5×10^5 years?

4. The vapour pressure of pure liquid A is one-third the vapour pressure of pure B at 20°C. If the two liquids form an ideal solution what is the composition of the vapour phase for an equimolar solution at 20°C? Is it possible to separate pure A from the above solution? Explain.

5. A mixture consisting of 5 parts oxygen and 1 part hydrogen diffuses through a small diaphragm into an evacuated vessel. Calculate the composition of the mixture which first passes through the diaphragm.

6. A certain weight of a given substance in 500 grams of benzene lowers the freezing point of benzene by 1.28°C. The same weight of the substance in 500 grams of water gives a freezing point of -1.40°C.

If the substance has its normal molecular weight in benzene and is completely ionized in water, into how many ions does a molecule of this substance dissociate when placed in water?

Molal freezing point depression constant for water, $K_f = 1.86$°C.

Molal freezing point depression constant for benzene, $K_f = 5.12$°C.

Preprofessional Year

ENGLISH COMPOSITION

No paper available

See: I Dental Hygiene

UNIVERSITY OF TORONTO

Faculty of Dentistry
Faculty of Pharmacy

ANNUAL EXAMINATIONS, 1963.

First Year

English Literature

Examiners - The Staff in English

Answer FOUR questions, ONE from each section

A.

1. "Tragedy is an imitation of noble actions." Discuss, with reference to the plays on the course.

2. "Every novelist is both realist and romancer." Examine the balance between "truth to life" and fiction in the prose works on the course.

3. Using Keats's doctrine of "Negative Capability" as a basis, discuss the function of poetry as understood by the poets you have studied.

B.

4. Compare Antony and Cleopatra and Death of a Salesman as tragic studies in individual failure.

5. "A tragedy without a plot." Discuss this evaluation of Samson Agonistes.

6. Evaluate the psychological truth and dramatic effectiveness of Playboy of the Western World as a study in the development of character.

C.

7. "Gulliver's Travels is as relevant to our present condition as it was to the age in which it was written." Discuss, with particular reference to one voyage.

8. Examine the central symbols of either Great Expectations OR Portrait of the Artist, and show how they relate to the theme of the work.

9. Examine and compare Huckleberry Finn and Portrait of the Artist as descriptions of adolescence.

D.

10. Compare the attitudes to nature in the poetry of Keats, Frost and Yeats. Illustrate your answer with reference to specific poems.

continued..

Annual Examinations
English Literature
First Year

Faculty of Dentistry
Faculty of Pharmacy

11. Give a critical analysis of the following poem, stating what it is about and how it achieves its effect.

The Hippopotamus

The broad-backed hippopotamus
Rests on his belly in the mud;
Although he seems so firm to us
He is merely flesh and blood.

Flesh and blood is weak and frail,
Susceptible to nervous shock;
While the True Church can never fail
For it is based upon a rock.

The hippo's feeble steps may err
In compassing material ends,
While the True Church need never stir
To gather in its dividends.

At mating time the hippo's voice
Betrays inflexions hoarse and odd,
But every week we hear rejoice
The Church, at being one with God.

I saw the 'potamus take wing
Ascending from the damp savannas,
And quiring angels round him sing
The praise of God, in loud hosannas.

Blood of the Lamb shall wash him clean
And him shall heavenly arms enfold,
Among the saints he shall be seen
Performing on a harp of gold.

He shall be washed as white as snow,
By all the martyr'd virgins kist,
While the True Church remains below
Wrapt in the old miasmal mist.

T.S.Eliot.

UNIVERSITY OF TORONTO
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Faculty of Forestry
Annual Examinations, 1963
PHYSICS
Examiner - A. W. Brewer

Clark's tables may be used. Slide rule accuracy is sufficient for all calculations. Full marks may be obtained for FIVE questions.

1. State Newton's Laws of Motion and Newton's Law of Gravitation.

Planet X has a radius of 10,000 km and at its surface the acceleration due to gravity is 2,000 cm sec^{-2}.

(a) If a mercury barometer reads 100 cm at its surface,
   (i) what is the atmospheric pressure at the surface,
   (ii) what weight of atmosphere does the planet have per cm^2?

(b) At what mean distance from the centre of the planet would a satellite orbit with a period of 10^5 second?

2. Show that the law of conservation of momentum follows from Newton's laws of motion.

If a person can just stand an acceleration of 25 g and survive, (a) what is the maximum justifiable strength for a car safety belt (for a 100 kg man), (b) what is the shortest distance in which one can be stopped from a speed of 20 m/sec, and expect to survive?

A car passenger is seated 50 cm from the instrument panel and while travelling at 20 m/s the car strikes a solid object, the front of the car being pushed in 100 cm. If the car decelerates uniformly and the passenger is without means of holding on, what will be his velocity relative to the car when he hits the panel?

3. Define the term moment of a force and explain carefully what is meant by the term centre of gravity.

I have a symmetric 3-legged table with a circular top 50 cm diameter and legs just 40 cm distance from each other. It will just tip over if I lift one leg by 15 cm. It weighs 2 kg.

(a) What is the greatest weight that I can place anywhere on the table without it tipping up?

(b) If it falls over, what is the minimum force which I can apply to lift it up?

4. Define Specific Gravity and Density. State Archimedes' Principle.

A ship has a maximum permitted weight of 10,000 metric tons (1 ton = 10^3 kg). When in fresh water the ship lowered 100 cm in the water when the last 1000 tons was added, to submerge the ship to the fresh water plimsol line.

(a) What is the area of the ship at the water line?

(b) By how much will the sea water plimsol line be covered?

(c) Derive an equation which will enable you to determine the time period at which it will "bob up and down".

5. Define surface tension and derive an expression for the excess pressure inside a soap bubble.

A soap film is formed over a circular wire frame of radius 1 cm and held up to the wind. If the back of the film is assumed to be at static pressure, what will be the radius of curvature of the film in a wind of 2 m/sec? What velocity would you expect to be necessary to carry away a bubble? Assume density of air = 1 gm/ℓ and surface tension of = 25 dyne/cm.

6. Describe the ways in which heat is transferred from one point to another and for each way mention one example where this method is predominant. Outline a method by which the thermal conductivity of a poor conductor may be measured.

A thermometer reads $20.5^{\circ}C$. It has a spherical bulb 1 cm in diameter which has walls 0.2 mm thick. It is plunged into ice water. Assuming that heat transfer in the water and mercury is infinitely rapid, how long will it take to change its reading to $19.5^{\circ}C$?

7. Obtain an expression for the electric potential at a point in vacuo which is a distance d from a charge of E e.s.u., and hence show that a sphere of radius r cm has an electric capacity of r e.s.u.

A 10 cm diameter sphere carries a charge of 100 e.s.u. How much energy is lost when it is discharged?

8. Derive an expression for the focal length of a thin lens in terms of the refractive index of the glass and the radii of curvature of its two surfaces. Prove the optical formulae you use. The furthest distance at which a certain short sighted person can see is 25 cm. Give details of a suitable spectacle lens for him to make it just possible to focus on infinity. One surface should be plane and the glass has a refractive index of 1.5.

Data you might need:

The density of mercury = 13.6
The specific heat of mercury = .033
Thermal conductivity of glass = .0025 cals $^{\circ}C^{-1}$ cm^{-1}
Density of sea water = 1.025 gm/cm^3

UNIVERSITY OF TORONTO
Faculty of Dentistry

ANNUAL EXAMINATIONS, 1963

Preprofessional Year

ZOOLOGY

Part A.to be written in a separate book

1. (a) What function does the contractile vacuole serve in Amoeba?

   (b) Indicate the functional counterpart of this vacuole in the Class Turbellaria.

   (c) What are the main differences in form and function between these two structures?

2. (a) Using only fully labelled diagrams indicate similarities and dissimilarities in a newly laid (fertilized) hen's egg and a frog's egg.

   (b) Comment on the significance of the membranes and the shell in the former and the lack of some of these in the latter.

Part B to be written in a separate book

3. Explain the action of three of the following:

   (a) A tracheal respiratory system in invertebrates.
   (b) Insulin on liver cells.
   (c) Estrogen
   (d) The cardiac branch of the vagus in the rabbit.
   (e) Adrenalin on the mammalian body.

4. (a) Define what you understand by the term coelome.

   (b) Using labelled diagrams show how a coelome forms in an amphibian.

   (c) On a labelled diagram only show how the coelome is subdivided in a mammal.

17

4. (d) List the functions served by a coelome.

Part C to be written on the separate answer sheet provided and must be enclosed with Part A examination book.

5. Complete the following statements by entering a word in each of the corresponding spaces on the answer sheet provided.

1. The cells of the living body constantly require a supply of (a)________ substances for their growth, and also as a source of (b)_______. In digestion both (c)________ and (d)________ processes convert complex foods into smaller (e) _________ which can be used by the body.

2. Genes which are composed of (a) _______ appear to be responsible for the development of (b) ________ in individuals.

3. Toward the end of gastrulation in the frog a mass of cells called collectively the (a) ________ lies dorsally under the ectoderm. These arise by a process called (b) _______ from cells of the dorsal lip.

4. Annelida show three important structural advances over the lower invertebrates, these are (a) ________ and (b) _______ and a closed circulatory system. In the lower invertebrates the functions of this latter system are met by means of (c) ________.

5. An ovarian follicle is caused to develop under the influence of (a) _______ produced by the pituitary. Under this stimulus the follicle produces the hormone (b) _______.

6. Deamination of amino acids takes place in the (a)______ of mammals. The amino groups are then combined with (b) ______ to produce (c) _______ which is excreted by the (d) ______. The remainder of the amino acids known as (e) _______ are converted to (f) _______ by the (g) __________.

7. The Portuguese Man-of-war belongs to the phylum (a) ______. It shows (b) _________ in having different kinds of polyps. Three functions carried on by separate polyps are (c) _______ (d) ______ (e) ______.

8. Mitochondria contain enzymes which carry out (a)_______ in cells. Microsomes contain (b) ______ as well as certain enzymes and their function is to manufacture (c) _______.

9. Abundant oxygen in the atmosphere was first contributed through a process known as (a) _______. This increase in oxygen made possible a new kind of respiration known as (b) ______ respiration which replaced fermentation or (c) ______ respiration.

10. The miricidium of the liver fluke must enter a (a) _______ before it can change into a sporocyst. By asexual reproduction the sporocyst produces (b) ______. Sheep are infested by eating (c) ______ which migrate to the (d) ______ of the sheep. Here (e) ______ reproduction is carried on by the parasite.

11. The superior cervical sympathetic ganglion lies at the level of the first (a) ________ in a mammal. Post ganglionic fibres from it are distributed to (b)______ and (c) _____. Stimulation of these fibres causes (d) _______ and (e) _______.

12. The class Sarcodina in the phylum Protozoa move by means of (a) ______, the class Infusoria by means of (b) _______. The protoplasm in *Amoeba* is divided into two different regions, an outer (c) _______ which is characteristically transparent and (d) ________; an inner (e) ______ which is granular and (f) _______. *Amoeba* reproduces (g) _______ by means of (h) ______ cell division.

UNIVERSITY OF TORONTO
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ANNUAL EXAMINATIONS, 1963

First Dental Year

BIOCHEMISTRY

ANSWER ANY FOUR QUESTIONS

1. Write the equations for as many enzymic reactions as you can, in which carbon dioxide is a product. Indicate briefly the part played by each reaction in the pathway from ingested foodstuffs to expired carbon dioxide.

2. Discuss the ways in which hormones may affect cell metabolism. Give specific examples where possible.

3. What are the forces responsible for maintaining the structure of a protein?

4. Describe the operation of the "urea cycle". In what ways would you expect the rate of operation of the "urea cycle" to influence the rate of reactions in the "tricarboxylic acid cycle"?

5. Compare and contrast, with respect to both chemical structure and biological function, cellulose, starch and glycogen.

UNIVERSITY OF TORONTO
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ANNUAL EXAMINATIONS, 1963

First Dental Year

COMPARATIVE DENTAL ANATOMY

Answer question number ONE and any FOUR other questions.

Labelled diagrams should be used to illustrate your answers whenever appropriate.

1. Give a brief account of the theoretical evolution of a mammalian molar from the simple reptilian tooth. In what manner do the cusp patterns of a quadricusped upper and lower second permanent molar differ from each other? How has this come about?

2. Describe the morphology and function of the "fangs" of poisonous snakes. How have they been evolved? The dentitions of poisonous and constrictor snakes are used in the same manner during the swallowing of the prey. Explain this.

3. "The Carnivora possess a more strongly heterodont dentition than do either the Perissodactyla or Artiodactyla." Is this true? Illustrate your answer with reference to cats, dogs, seals, raccoons, bears, pigs, camels, deer, cows, horses and rhinoceros.

4. The permanent molars of the diphyodont mammalian dentition represent the last developing elements of the first zahnreihe. Show how this statement is true and how the diphyodont condition can be derived from the alternate and serial tooth replacement of a reptile. With this understanding of the processes of

replacement, how might the opossum's dental elements be derived? Express this derivation as a formula.

5. Explain the derivation and function of the Proboscidean heterodont dentition. Can any parallels be drawn with Rodentia? Diagrams should be used.

6. Give an illustrated account of the development of the placoid scale. How might this scale have been derived from the heavy 'ganoid' primitive scale?

7. Give an account showing the interrelationships in form and function between the sagittal crest or its abscence, the shape of the glenoid fossa, the morphology of the teeth and their distribution in the jaws in a strict Carnivore, an amnivorous Artiodactyl, a Rodent and a Hominid.

UNIVERSITY OF TORONTO
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ANNUAL EXAMINATIONS, 1963

First Dental Year

GROSS AND DENTAL ANATOMY

All questions are of equal value.
Answer Parts A and B in separate books.

PART A

1. Outline the origin, course, and termination of the:

   (a) right phrenic nerve
   (b) esophagus
   (c) thoracic duct
   (d) internal mammary artery
   (e) azygos vein

2. Describe the pharynx under the headings:

   (a) communications
   (b) musculature
   (c) motor and sensory innervation

3. (A) Name the branches of the spheno-palatine ganglion, and indicate their distribution.

   (B) Give an account of the arterial supply to the cerebral cortex.

GROSS AND DENTAL ANATOMY

PART B

4. (a) Using symbols, write the dental formula for a child 10 years old.

(b) List four points of anatomical difference between $\underline{/e\ }$ and $\underline{/6\ }$.

(c) What is a dental anomaly? Name four.

(d) Give the location of each of the following when the teeth are in occlusion in centric relation:

I Mesio-lingual cusp $\underline{/7\ }$
II Incisal edge $\underline{\quad}\ \underline{\ 2/}$
III Buccal cusp $/4$
IV Disto-lingual cusp of $\underline{/6\ }$
V Disto-buccal cusp $\underline{/e\ }$

(e) List the mechanisms that operate to provide the necessary space for the permanent anterior teeth when they erupt into the mouth of a child.

(f) When would you expect each of the following teeth to erupt into the mouth?

$\underline{/1\ }$
$\underline{\ 5/}$
$\underline{/d\ }$
$\underline{\ 7/}$
$\underline{\ c/}$

$\overline{\ a/}$
$/\overline{3\ }$
$\overline{\ 2/}$
$\underline{/3\ }$
$\overline{\ 4/}$

UNIVERSITY OF TORONTO
Faculty of Dentistry

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First Dental Year

HISTOLOGY

1. What is the origin, structure, function, and fate of Hertwig's Epithelial Root Sheath?

2. Tell in detail the differences in microscopic structure between the mucous membrane lining the cheek and thin skin.

3. Describe the microscopic appearance of both the exocrine and endocrine components of the pancreas.

4. What is the microscopic structure of a kidney nephron?

5. What is the general structure of a basement membrane? Give three specific examples of where a basement membrane is found, and state its function or functions in each case.

UNIVERSITY OF TORONTO
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1963

First Dental Year

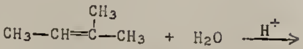
CHEMISTRY 216
ORGANIC CHEMISTRY

Examiner - R. R. Hiatt

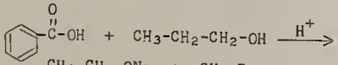
No aids required.

Marks

(35) I. Write structures for and name the organic products of the following reactions. If more than one product is possible, show both and indicate which would predominate in the product mixture.

1. 
$CH_3—CH{=}\overset{CH_3}{C}—CH_3 + H_2O \xrightarrow{H^+}$

2. 3-chloro,2,5-dimethyloctane + NaOH $\longrightarrow$

3. 

4. $CH_3-CH_2-ONa + CH_3-Br \longrightarrow$

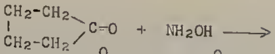
5. methyl amine + $CH_3Br \longrightarrow$

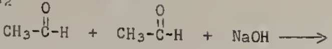
6. m-dinitrobenzene + HNO_3 + $H_2SO_4 \longrightarrow$

7. acetic acid + aqueous NaOH $\longrightarrow$

8. propanoic acid + $SOCl_2 \longrightarrow$

9. butanoyl chloride + $CH_3\overset{H}{N}H \longrightarrow$

10. 

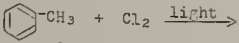
11. 
$CH_3-\overset{O}{\overset{\|}{C}}-H + CH_3-\overset{O}{\overset{\|}{C}}-H + NaOH \longrightarrow$

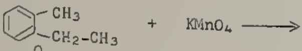
12. butanal + $H_2 \xrightarrow{Pt}$

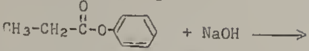
13. $CH_3-CH_2-MgBr + CO_2 \longrightarrow$

14. 2,3-dibromo-3-methylheptane + Zn $\longrightarrow$

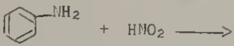
15. diethyl ether + HI $\longrightarrow$

16. 

17. 

18. 

19. 2-pentanone + $H_2NNH_2 \longrightarrow$

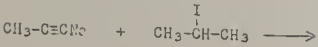
20. 

21. acetaldehyde + $CH_3OH \xrightarrow{H^+}$

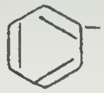
22. $CH_3-CH{=}CH-CH_2-CH_3 + KMnO_4 \longrightarrow$

23. cyclohexanol + $KMnO_4 \longrightarrow$

24. 1-hexanol + $KMnO_4 \longrightarrow$

25. 
$CH_3-C{\equiv}CNa + CH_3-\overset{I}{C}H-CH_3 \longrightarrow$

(20) II. Discuss by means of diagrams and equations the mechanism of the substitution of benzene by positively charged intermediates as in the case of these three reactions:

benzene + CH_3CH_2Cl + $AlCl_3$ ⟶ -CH_2-CH_3

benzene + HNO_3 + H_2SO_4 ⟶ nitrobenzene

benzene + Br_2 + $FeBr_3$ ⟶ bromobenzene

For the bromination illustrate the course of the reaction with a potential energy diagram showing relative positions of starting material, intermediate, product.

In the bromination of bromobenzene with bromine and $FeBr_3$ the products are o-dibromobenzene, 60%; m-dibromobenzene, 10%; p-dibromobenzene, 30%. Explain, using potential energy diagrams.

(15) III. Give an example, showing structure, for each of the following:

1) a dipeptide,
2) an optically active compound,
3) an acetal,
4) a linear polymer,
5) a cis isomer,
6) an enol,
7) a quaternary ammonium ion,
8) a glycol,
9) a Grignard reagent,
10) an oxime.

(15) IV. Show, using as many examples as you can, the extreme utility of H_2SO_4 both as reagent and as catalyst, for changing a compound with one kind of functional group into one with another kind of functional group.

(15) V. Compound A has the formula $C_6H_{10}O_2$. It reacts with Tollens$_H$Reagent (Ag^++ NH_3) to give B ($C_6H_{10}O_4$). B on reaction with HN-CH_2-CH_2-CH_2-CH_2-CH_2-CH_2-NH_2 gives nylon. A with H_2 and Pt gives C ($C_6H_{14}O_2$) which on dehydration with H_2SO_4 gives D (C_6H_{10}). Catalytic hydrogenation of D gives n-hexane.
What are the structures of A, B, C, D ?

Compound A (whose structure you now know) undergoes an internal condensation of the aldol type on treatment with NaOH. The initial product loses H_2O easily to give E (C_6H_8O). E with Tollens Reagent gives F ($C_6H_8O_2$). F with H_2 and Pt gives G ($C_6H_{10}O_2$). Both F and G are carboxylic acids. The sodium salt of G on fusion with NaOH gives cyclopentane. What are the structures of E, F, and G ? Show the stepwise mechanism for the reaction that A undergoes to give E.

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ANNUAL EXAMINATIONS, 1963

Second Dental Year

BACTERIOLOGY

1. (a) Describe five different types of vaccines and indicate in each case for what diseases it is used to prevent.

   (b) Describe a serological method to demonstrate univalent antibody and in what instances would these be present.

2. What are the immunological mechanisms and pathological reactions involved in:

   Anaphylaxis
   Hay fever
   Infectious hypersensitivity
   Rheumatic fever

3. Describe briefly the media to be used and the other laboratory methods to isolate and identify the following organisms from mouth or throat swabs:

   Corynebacterium Hoffmanni
   Neisseria catarrhalis
   Streptococcus viridans
   Staphylococcus albus
   Lactobacilli

4. What are the differences between bacillary dysentery and amebic dysentery in respect to development of disease, clinical symptoms, and laboratory procedures for diagnosis.

5. What are the differences in respect to, route of infection, incubation period, type of onset, duration, age distribution, localization of the agent, and carrier state in infectious hepatitis and in serum

hepatitis. How can infections be prevented.

6. What are the modes of action of Tetracyclines and of Chloramphenicol. What inter-relations between the host and the parasite determine their clinical use.

7. ANSWER "A" OR "B"

   (a) What are the clinical symptoms of actinomycoses infections and what is the laboratory diagnosis.

   (b) What are the clinical symptoms of Candida albicans infections and what is the laboratory diagnosis.

8. ANSWER "A" OR "B"

   (a) What is the pathogenesis, pathology and clinical symptoms of polimyelitis virus infections. List the procedures to isolate and type this virus from a clinical case.

   (b) What is the pathogenesis and clinical symptoms of infections with Coxsackie virus. What are the procedures to isolate and type these viruses from a clinical case.

9. ANSWER "A" OR "B"

   (a) What is the pathogenesis of Neisseria infections. List the laboratory tests for confirmation.

   (b) What is the pathogenesis of Tuberculosis infections. List the laboratory tests for confirmation

10. Write a concise note on any three of the following items:

    Weil's disease
    Schick test
    Dick test
    T.P.I. test
    "use dilution test" for testing antiseptics.
    The reactions following primary and subsequent vaccination with vaccinia virus.
    Athlete's foot

Second Dental Year

GENERAL PATHOLOGY

No paper available

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Second Dental Year

PHARMACOLOGY

Marks

Up to 5 marks will be allowed for neatness, legibility and concise answers.

8 1. (a) Define addiction, tolerance, habituation, physical dependence.

8 (b) Describe the effects of nalorphine when given to a morphine addict.

16 2. Enumerate dangers specifically associated with the use of ether, nitrous oxide, cyclopropane, thiopental.

16 3. Discuss the importance of the autonomic nervous system in the study of drug action. Give examples of drugs to illustrate your answers.

16 4. Discuss the treatment of acute poisoning, from the dental point of view.

16 5. Discuss the action of atropine sulphate on the heart, central nervous system, smooth muscle, salivary glands.

8 6. (a) Write a prescription for a 50 year old, 90 kilogram male with a staphylococcal abscess of the jaw, choosing one of the newer synthetic penicillins.

7 (b) Outline the considerations determining your choice.

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PHYSIOLOGY

Answer only FIVE of the seven questions. The questions are of equal value.

1. (a) Discuss briefly the red blood corpuscles of mammals under the headings of:

   i. Sites and rate of production under ordinary conditions.
   ii. Nutritional and environmental factors that influence rates of production.

   (b) Outline the operation of the factors that are involved in the return of venous blood to the heart.

2. (a) Outline briefly but concisely the role played by platelets and plasma proteins in haemostasis.

   (b) Describe, by means of a table or diagram, the operation of the factors that are involved in the formation of lymph fluid. State three conditons which increase the flow of lymph fluid from organs, and briefly explain how the increase is brought about.

3. (a) Describe and explain the effects on heart rate and cardiac output of the following:

   i. Stimulation of efferent vagal fibres to the heart.
   ii. Acute haemorrhage resulting in the rapid loss of about one-fifth of the total blood volume.

   (b) i. Briefly describe the mechanisms whereby foreign materials, fluids, etc., are expelled from the air passages.

3. (b) ii. Describe the processes in red blood corpuscles and plasma whereby carbon dioxide is released from the blood to the lung air.

4. (a) Outline the role of the kidney glomeruli in the production of urine, and show the operation of the factors involved.

   (b) Outline the role of the posterior pituitary gland in the regulation of urine volume.

   (c) Outline the effects of the adrenal cortex on the kidney.

5. (a) Describe concisely the effects of mastication of foodstuffs.

   (b) Outline the various means whereby salivation is controlled in man.

6. Write brief but concise notes on the following:

   (a) Action potentials in nerve.
   (b) Transmission of excitation at motor nerve endings.
   (c) Tonus in skeletal muscle.

7. (a) Outline the effects of removal of one of the following:

   i. The thyroid gland
   OR
   ii. The parathyroid glands

   (b) Outline the operations of the various tissue processes that determine the level of sugar in the blood.

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Third Dental Year

ANAESTHESIA

1. With the aid of diagrams, discuss the sensory innervation to the dentition.

   Be sure the supporting hard and soft tissues are included in your discussion.

2. (a) With the aid of a diagram, discuss the anatomical landmarks, both hard and soft, involved in mandibular block anaesthesia.

   (b) In point form outline the procedure for a mandibular block injection.

3. It is known that failure to acquire adequate anaesthesia must be due to one or a combination of the following factors:

   a) the patient
   b) the solution
   c) the operator

   Discuss the merits of each of the above when this problem arises.

4. Discuss the merits of pre-medication in Dentistry.

5. With the aid of a diagram, discuss the effect of general anaesthesia upon the central nervous system.

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Third Dental Year

NUTRITION

Marks

12 1. Briefly describe the functions of four of the following nutrients. Indicate, by name or description, one clinical deficiency sign or disease for each.

Thiamine
Vitamin D
Iron
Ascorbic Acid
Niacin
Protein

9 2. List the suitable intake (Canada) for a 5 year old child for three of the following nutrients. For each of the nutrients chosen, list two foods which could be called excellent sources.

Calcium
Ascorbic Acid
Thiamine
Protein
Vitamin A

12 3. Briefly discuss the flexibility of the recommendations in Canada's Food Guide. Explain why this flexibility is necessary.

17 4. (a) List the foods in Canada's Food Guide and explain in some detail their contribution to human nutrition.

(b) How would you determine the adequacy of a patient's diet from both the nutritional and dental aspect.

Third Dental Year

ORAL PATHOLOGY

No paper available

Third Dental Year

PREVENTIVE DENTISTRY

No paper available

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Third Dental Year

SURGERY

1. A patient has an acute staphylococcal infection of the knee joint.

    (a) Describe the local and systemic features that might be present.

    (b) Describe the treatment.

2. A patient has a fracture of the mandible.

    (a) Describe the clinical features.

    (b) Describe a method of treatment.

    (c) Discuss briefly the complications that might occur.

3. Describe the usual history and clinical features of a basal cell carcinoma (Rodent Ulcer) occurring on the face.

    Describe the treatment.

4. Describe the clinical features and treatment of a patient with a severe haemorrhage.

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Fourth Dental Year

Marks — **Paper #1 - ORTHODONTICS**

1. Answer each part of this question with a sentence or two or a simple sketch.

3 a. What is meant by the following terms:
(i) Skeletal malocclusion.
(ii) Dento-alveolar malocclusion.
(iii) Neuromuscular malocclusion.

1 b. Why is it important to be able to assess into which of the above categories a malocclusion falls?

3 c. What are the terms used in the classification of normal facial types existing in the population and what do these terms mean?

3 d. What are the terms used in the classification of normal profile types existing in the population?

1 e. How do we assess facial type?

1 f. How does skeletal malocclusion arise?

3 g. Sketch the normal dento-alveolar compensations seen in the various facial and profile types.

****

5 2 a. Show by sketches that you understand what is meant by equilibrium in the forces of occlusion and the buccinator tongue mechanism.

3 b. Why would the extraction of a mandibular first permanent molar disturb this equilibrium?

7 c. List the changes which will occur in

Marks

the total occlusion following the removal of a lower permanent molar and explain how they are produced.

****

2. 3a. List the characteristics of an infant type swallow.

2 b. List the characteristics of an adult type swallow.

2 c. List the characteristics of an atypical swallow.

5 d. List the causes of atypical swallow.

6 e. List a classification of the types of tongue thrusts and give an example of each type.

3 f. Indicate in one sentence the treatment approach for each class of tongue thrust.

PAEDODONTICS

20 1. Clinical examination reveals that a five year old child has rampant dental caries involving all deciduous teeth. Describe briefly, in not more than three or four sentences, four different measures that should be instituted to bring this situation under control.

15 2. In not more than one or two sentences discuss the significance of the following:

(a) Eruptive bruising
(b) Distal step
(c) Cheilosis
(d) Over-jet
(e) Primate space

15 3. A four year old child who has recently had dental treatment completed, returns with history of pain, elevated temperature and a cellulitis on one side of the mandible. It is determined that the swelling is due to an infected pulp resulting from a previous carious exposure of the second deciduous molar. Outline in point form the treatment programme necessary to render this patient dentally fit.

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Paper #2
OPERATIVE DENTISTRY

Marks	
6	1. List reasons for fractures in porcelain jacket crowns insofar as the tooth preparation is concerned.
6	2.(a) Enumerate the factors that influence the outline form of a cavity.
10	(b) What factors determine the selection of the material to be used to restore a tooth.
8	3. Describe your method of restoring a large carious area on the proximal surface of a posterior tooth where the adjacent tooth has drifted into the carious area.
10	4. List the procedures and precautions to be followed to successfully expose a cavity margin for a hydrocolloid impression.
10	5. Illustrate with diagrams the correct location and direction for pins in a three pin inlay in an upper lateral incisor. Show the labio lingual and mesio distal direction.

PROSTHODONTICS

Marks

20 1. Name the landmarks to be considered in forming the periphery of an edentulous maxillary and mandibular impression.

15 2. Describe the procedure for making a maxillary edentulous impression when the tissue in the anterior part of the ridge from cuspid to cuspid area is easily displaceable and surgery is contra-indicated.

15 3.(a) Detail the information that should be provided to the laboratory for the fabrication of a cast partial framework.

(b) By what means is this information obtained.

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Paper #3

MEDICINE

Marks

20 1.(a) Discuss the effects produced by the hormones secreted by the adrenal cortex.

(b) Discuss the causes, clinical manifestations and treatment of Addison's disease (adrenal cortical insufficiency).

15 2.(a) Discuss the mechanisms involved in the clotting of blood.

(b) Briefly describe two diseases in which blood clotting is impaired.

15 3. Discuss serum hepatitis under the following headings:

(a) Cause and prevention
(b) Clinical symptoms and signs
(c) Laboratory findings.

PERIODONTICS

Marks

15 1. A patient, female, age 30, reports that she has been unable to chew tough foods during the past two months, because the chewing induces discomfort in the posterior part of the left cheek, particularly in an area just in front of the left ear. During the last two months the patient has had a general physical examination and an ear-nose-and-throat examination. The findings were negative. It was suggested by a physician that the patient consult a dentist.
Outline the examination procedure which you should employ to determine the cause of the discomfort.

10 2a. Differentiate between gingival and infra-bony pockets. Name the subclasses of each class.

5 b. Indicate the principle which is usually feasible and efficient for reduction of depth of each class and subclass of pocket.

5 3. State briefly:

5 a. Suggested main divisions for therapy of periodontal disease.

5 b. Factors which influence the tightness of teeth.

5 c. Direct local causes of recession of the gingival tissues.

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Fourth Dental Year

Paper #4

ORAL SURGERY AND ANAESTHESIA

Marks

14 1. A new patient reports to your office that he is allergic to local anaesthetics. Discuss, in full, how you would handle this problem.

12 2. You plan root resections of the lower four incisors following endodontics for a healthy 22 year old female.

(a) Discuss the pre-operative preparation.
(b) Discuss the type of anaesthesia you would use.
(c) Discuss the type of flap design you would employ.

12 3. (a) Define a radicular cyst.
(b) Discuss the treatment of such a cyst involving the upper right central and lateral incisors.

12 4. (a) Give a brief classification of fractures of the mandible.

(b) Discuss your method of treatment of a fracture between the lower right second bicuspid and first molar teeth. There is a good complement of upper and lower teeth in a good state of repair.

DENTAL RADIOLOGY

Marks

1. Discuss the various radiolucencies observed in dental films of the anterior maxillary region - from the following aspects: 17

   (a) Anatomy - Pathology
   (b) Differential diagnostic interpretation.

2. (a) What are the chief properties of X-rays?

   (b) Give an account of the possible ill-effects of radiation. Discuss the steps which can be taken to minimize these dangers.

3. Give a description and differential radiographic interpretation of the following:

   (a) Internal resorption
   (b) External resorption

   Emphasize the radiographic aspect and illustrate where applicable.

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Fourth Dental Year

Paper #5

DENTAL PUBLIC HEALTH

Marks

15 1. Describe three phases of scientific investigation which led to the establishment of the Fluoride-Dental Caries relationship.

10 2. What factors should be considered in developing plans for a local dental public health programme?

ENDODONTICS

5 1. (a) What is the meaning of the term "Biomechanical Instrumentation"?

10 (b) Describe briefly four of the more important factors to be given consideration when performing this operation.

10 2. Name three ways in which adequate biomechanical instrumentation of the root canal can influence the effect of subsequent medication.

PRACTICE MANAGEMENT

Marks

5 1. (a) What are the factors involved in determining dental fees?

5 (b) When and how should the question of fees be presented to the patient

15 2. How do you explain the diagnosis and aims of treatment to a patient?

PREVENTIVE DENTISTRY

10 1. Discuss the physical consistency of food in relation to the health of periodontal tissues.

15 2. Outline the role of diet and nutrition in the management of a patient with rampant caries.

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ANNUAL EXAMINATIONS, 1963

First Year Dental Hygiene

DENTAL PROPHYLAXIS

Marks

10 1. (a) Outline concisely theories concerning the formation of calculus on the teeth.

10 (b) Make a drawing which depicts stages of formation of sub-gingival calculus.

5 2. (a) Name the factors which control the tightness of the teeth.

5 (b) Name the steps involved in the deepening of a periodontal pocket.

5 (c) Name effects of vigorous (within normal limits) function of the teeth.

5 (d) Name three particularly unfavourable effects of acute necrotic gingivitis.

12 3. List the steps you would take in preparing for a patient prior to the prophylaxis appointment, and describe how you would preserve sanitary conditions during this appointment.

8 4. Describe an efficient toothbrushing method which you would teach an adult patient.

Marks

8 5. State three principles of sharpening instruments and discuss briefly the importance of sharp instruments.

9 6. (a) Give three reasons why the Dental Hygienist should record the patient's past medical history.

21 (b) Define the following:

- i. Neutrocclusion
- iii. Posterior crossbite
- iii. Open bite
- iv. Overjet
- v. Periodontal probe
- vi. Dental Hygienist
- vii. Symptoms of disease

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First Year

ENGLISH COMPOSITION

Examiners - The Staff in English.

Answer ONE of the following questions, on which you should write approximately 1,000 words. Your work will be judged on thought, illustration, organization, grammar, diction, punctuation and spelling.

1. "We cannot rely upon the self-discipline of individuals. Laws enforced by the state are the only effective guarantee of morality."

Write on one part only, either (a) or (b):

(a) Give a balanced discussion in essay form of the above assertions.

(b) In two separate papers argue in one for, and in the other against, the above assertions.

2. Write an essay on the value of preserving the cultures of minority national groups in Canada.

3. "All fiction is fundamentally escapist, but some kinds of escape are more valuable than others." In the light of this statement, write an essay on some fiction you have reac

4. Read the following passage and write the essay proposed.

Reality and Appearance

"When, generations from now, the historian of our times undertakes to describe the assumptions of our culture, he will surely discover that the word reality is of central importance in his understanding of us. He will observe that for some of our philosophers the meaning of the word was a good deal in doubt, but that for our political writers, for many of our literary critics, and for most of our reading public, the word did not open discussion but, rather, closed it. Reality, as conceived by us, is whatever is external and hard, gross, unpleasant. Involved in its meaning is the idea of power conceived in a particular way. Some time ago I had occasion to remark how, in the critical estimates of Theodore Dreiser, it is always being said that Dreiser has many faults but that it cannot be denied that he has great power. No one ever says "a kind of power." Power is assumed to be always "brute" power, crude, ugly, and undiscriminating, the way an elephant appears to be. It is seldom understood to be the way an elephant actually is, precise and discriminating; or the way electricity is, swift and absolute and scarcely embodied.

The word reality is an honorific word and the future historian will naturally try to discover our notion of its pejorative opposite, appearance, mere appearance. He will find it in our feelings about the internal; whenever we detect evidence of style and thought we suspect that reality is being a little betrayed, that "mere subjectivity" is creeping in. There follows from this our feeling about complication, modulation, personal idiosyncrasy, and about social forms, both the great and the small"

Write an essay giving your views on the proper meaning and application of the terms 'reality' and 'appearance', using, if you wish, ideas suggested by the above passage, which is intended rather to stimulate your own thinking than to be taken over for mere amplification.

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First Year

English Literature

Examiners - The Staff in English

Answer FOUR questions, ONE from each section

A.

1. "Tragedy is an imitation of noble actions." Discuss, with reference to the plays on the course.

2. "Every novelist is both realist and romancer." Examine the balance between "truth to life" and fiction in the prose works on the course.

3. Using Keats's doctrine of "Negative Capability" as a basis, discuss the function of poetry as understood by the poets you have studied.

B.

4. Compare Antony and Cleopatra and Death of a Salesman as tragic studies in individual failure.

5. "A tragedy without a plot." Discuss this evaluation of Samson Agonistes.

6. Evaluate the psychological truth and dramatic effectiveness of Playboy of the Western World as a study in the development of character.

C.

7. "Gulliver's Travels is as relevant to our present condition as it was to the age in which it was written." Discuss, with particular reference to one voyage.

8. Examine the central symbols of either Great Expectations OR Portrait of the Artist, and show how they relate to the theme of the work.

9. Examine and compare Huckleberry Finn and Portrait of the Artist as descriptions of adolescence.

D.

10. Compare the attitudes to nature in the poetry of Keats, Frost and Yeats. Illustrate your answer with reference to specific poems.

continued..

Annual Examinations
English Literature
First Year

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11. Give a critical analysis of the following poem, stating what it is about and how it achieves its effect.

The Hippopotamus

The broad-backed hippopotamus
Rests on his belly in the mud;
Although he seems so firm to us
He is merely flesh and blood.

Flesh and blood is weak and frail,
Susceptible to nervous shock;
While the True Church can never fail
For it is based upon a rock.

The hippo's feeble steps may err
In compassing material ends,
While the True Church need never stir
To gather in its dividends.

At mating time the hippo's voice
Betrays inflexions hoarse and odd,
But every week we hear rejoice
The Church, at being one with God.

I saw the 'potamus take wing
Ascending from the damp savannas,
And quiring angels round him sing
The praise of God, in loud hosannas.

Blood of the Lamb shall wash him clean
And him shall heavenly arms enfold,
Among the saints he shall be seen
Performing on a harp of gold.

He shall be washed as white as snow,
By all the martyr'd virgins kist,
While the True Church remains below
Wrapt in the old miasmal mist.

T.S.Eliot.

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First Year Dental Hygiene

FOOD CHEMISTRY

1. (a) How many grams of sodium sulphate would be required to make:

   (i) 3000 ml. of 0.5 Molar solution
   (ii) 50 ml. of 2% w/v solution?
   Na = 23
   S = 32
   O = 16

   (b) Define pH. Name TWO methods of measuring pH. Explain the difference in the pH values of normal solution of acetic acid and a normal solution of hydrochloric acid.

2. (a) Name and give a structural formula for a mixed triglyceride.

   (b) Write balanced equations for:

   (i) formation of soap using the substance mentioned in (a).
   (ii) addition of soap to hard water.
   (iii) addition of soap to hydrochloric acid.

   Name each compound formed in (i), (ii) and (iii).

   (c) What is meant by 'hydrogenation' and 'rancidity' as applied to fats?

3. (a) Give the meaning of each of the following suffixes when used in naming organic compounds:

   'al' 'one' 'oic' 'ase' 'ol' 'ose'

3. (b) Give one example (with formula) for ANY FOUR substances in (a) related to food or a food product. Mention the relationship.

4. STARCH and ALBUMIN are two naturally occurring foodstuffs. Differentiate between them under the following headings:

   (a) one test for each to indicate its presence in solution
   (b) unit molecular structure
   (c) type of linkage within each structure
   (d) substances formed on progressive hydrolysis of each
   (e) place(s) in the body where each is digested
   (f) enzyme(s) responsible for digestion in the body
   (g) optimum pH for each enzyme in (f)
   (h) name of end product(s) of digestion for each enzyme named in (f)

5. Write a short note on either MILK or EGGS including any information which will show its nutritional value.

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GROSS AND DENTAL ANATOMY

Answer parts A and B in separate books

Part A

1. Draw the occlusal surface of $\underline{/6}$ and label the cusps, ridges, grooves, pits and fossal.

2. Certain anatomical features of teeth are well suited for the protection of the supporting tissues.
    Name these features.
    Describe their form and location.
    How do they perform their function?

3. Define the terms variation and anomaly.
    Prepare a classification of variations and anomalies and give examples for each division and subdivision in your classification.

Part B

1. Give an account of the sensory nerve supply of the oral cavity.

2. Describe the maxilla.

3. Give an account of the heart under the following headings:

    (a) The blood vessels entering and leaving it

    (b) The chambers

    (c) The valves

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HISTOLOGY

Part "A" - General Histology

1. By means of diagrams show the development and fate of cartilage in the body.

2. Write notes on any five of the following:

    1. polyploidy
    2. phagocytosis
    3. karyorrhexis
    4. periosteum
    5. irritability
    6. neutrophil
    7. fibroblast

3. In point form what are the main differences between a "white clot" and a "red clot".

4. (a) Name the four basic tissues in the human body.

    (b) Indicate which physiologic properties of protoplasm are highly developed in each of the above basic tissues.

15

Part "B" Dental Histology

1. (a) With the aid of drawings, describe the microscopic anatomy of the periodontal ligament.

   (b) List the functions of the periodontal ligament.

2. Write short notes on any five of the following:

   1. Enamel tuft
   2. Lines of Retzius
   3. Osteoclast
   4. Hertwig's Epithelial Root Sheath
   5. Epithelial rests of Malassez
   6. Tomes' granular layer
   7. Odontoblast

3. Describe cementum under the following headings:

   1. Definition
   2. Composition
   3. Microscopic anatomy
   4. Functions of cementum

First Year Dental Hygiene

PSYCHOLOGY 1 n

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DENTAL PUBLIC HEALTH

Marks

20 1.(a) Outline the Dental Public Health Policy of the Canadian Dental Association.

(b) How would the categories listed for preventive measures as stated in the policy referred to above influence the planning of a dental health program and the work a dental hygienist may be delegated to do?

15 2.(a) Describe the purposes for which dental surveys of school children are conducted.

(b) Name and define one dental health index used to describe each of the five major dental attributes (i.e. level of treatment, dental caries, oral hygiene, periodontal disease, malocclusion).

15 3.(a) Name and describe three common sampling techniques.

(b) Describe the advantages and disadvantages of the following forms for recording dental examination findings;

(i) Canadian Dental Association manual recording forms D.H.1, D.H.3 and D.H.4.

(ii) Holerith keypunch and Holerith mark sense guide cards.

20 4.(a) Discuss briefly the history of water fluoridation, with the phases of research which have lead up to its present status as a recognized public health measure.
(b) Describe the use of topical fluoride as a preventive measure and compare its effectiveness to that of water fluoridation.

15 5.(a) Describe briefly the health services you would expect to find in a fully established County Health Unit.
(b) How would the Health Unit Board differ from the Board of Health in a Metropolitan area?

15 6.(a) Describe in point form the lesson outline you would prepare to describe the reasons for good oral hygiene in preventing dental caries, to a class of Grade XII students.
(b) What reasons would you give a parent for bringing their 2½ year old child to the family dentist?

Second Year Dental Hygiene

DENTAL RADIOGRAPHY

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PATHOLOGY

1. What is a non-odontogenic cyst of the jaws and how does it occur?

2. Explain the process of healing of a wound by secondary union.

3. Define an infarct and explain how it occurs.

4. What is meant by organization of an exudate?

5. Describe the ways in which a malignant tumour can spread.

6. How does a thrombus become re-canalized?

7. Describe in order the vascular changes in acute inflammation.

8. Describe the various resultant effects that inflammation may have on a dental pulp.

PHARMACOLOGY

1. What is meant by the following terms? Give one example of each.

   (a) Analgesic
   (b) Hypnotic
   (c) Antibiotic
   (d) Antiseptic

2. (a) Name three drugs which may be used for premedication.

   (b) What are the effects and value of the preoperative administration of Meperidine Hydrochloride (Demerol)?

3. (a) What are the desirable properties of an ideal local anaesthetic solution?

   (b) Why are vasoconstrictors added to these solutions?

4. (a) What properties of penicillin make it applicable to dental use?

   (b) List two alternative anti-infective drugs.

5. Give two examples each of the following types of hemostatic agents.

   (a) Absorbents
   (b) Caustics
   (c) Acting on blood vessels

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PHYSIOLOGY

1. Write brief notes on the following:

   (a) insulin
   (b) antidiuretic hormone

2. Draw the oxygen dissociation curve of whole blood and indicate the physiological significance of its shape.

3. (a) Discuss obesity.
   (b) Describe what happens to plasma glucose in the kidney.
   (c) At what levels of biological organization does destruction and replacement occur?

4. (a) In one sentence define: peripheral resistance; capillary; carotid sinus; stroke volume; vasomotor center.

   (b) Outline the reactions important for the return of blood to the heart.

5. (a) Give average normal values for the following: white cell count; per cent hemoglobin in the blood; platelet count; systolic blood pressure in brachial artery; blood volume.

   (b) Outline the reactions involved in blood coagulation.

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PREVENTIVE DENTISTRY

Marks

20 1. Outline and discuss briefly the measures that can be employed in the prevention and control of dental caries.

20 2. What instructions would you give:

(a) to an expectant mother to guide her in the prevention of the occurrence of sucking habits in the new born.

(b) to an orthodontic patient concerning his or her oral hygiene and diet during treatment.

5 3. (a) Explain briefly what is meant by "energy (caloric) balance" in the adult.

9 (b) How may energy balance be disturbed? What would be the effect of such a disturbance on body weight and the relative amounts of carbohydrate, fat and protein in body tissues?

Answer *either* (c) or (d)

6 (c) List two functions, other than energy source, of fat and protein in the body and give one important food source for both nutrients.

OR

Marks

6 3. (d) List one function and one important food source for a water-soluble vitamin, a fat-soluble vitamin and a mineral (nutrient element).

20 4. (a) Discuss the value of caries activity tests as part of a nutritional assessment. Describe briefly one such test.

(b) Describe in detail and compare two methods of dietary correction with special reference to the dental caries activity.

20 5. (a) List the possible consequences of premature loss of deciduous teeth.

(b) In not more than one or two sentences, describe the films and projections used for semi-annual routine radiographic examinations in the following cases:

i. for children prior to the eruption of the first permanent molars.

ii. for children after the eruption of the first permanent molars.

Second Year Dental Hygiene

SOCIOLOGY 1 a

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